Tadiran HF-6000

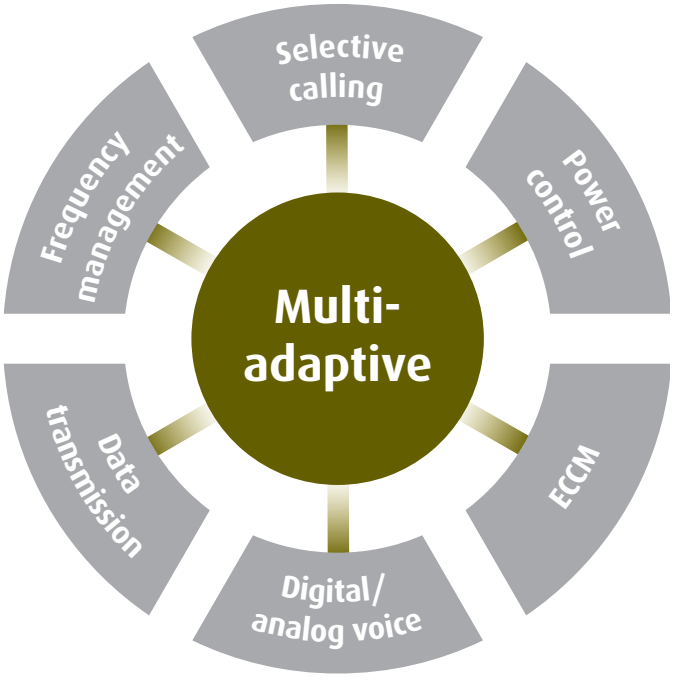
Combat-proven and multi-adaptive HF radio systems for reliable communications

Elbit Systems™
Land and C4I

Tadiran HF-6000

Combat-proven and multi-adaptive HF radio systems for reliable communications

- Operating range of 1.5 to 30MHz
- Analog and digital encryption
- Built-in low-rate vocoders
- High speed data communication
- Advanced ECCM
- Proprietary antennas providing unparalleled performance
- Military standard ALE and data protocols
- Lightest man-pack system in its class



The Tadiran HF-6000 radio systems deliver combat-proven HF operations to the modern battlefield. Offering advanced COMSEC and ECCM functions, these radio systems offer highly-reliable and secure voice and data HF communications. They also incorporate a wide range of proprietary tactical antennas, specifically designed to address complex operational scenarios. In addition, they can be fully integrated with C4I systems and are available in portable man-pack, vehicular, ship, fixed station and high-power configurations.

Multi-adaptive – The advanced capabilities built into the radio systems allow it to adapt to the ever-changing battlefield conditions, ensuring increased operational efficiency and reliable communications at all times. The Tadiran HF-6000 provides automatic and fast selection of optimal frequency for rapid and reliable link establishment. The radio systems enable frequency-hopping over the entire frequency band, providing dependable operations even in densely-jammed environments. The built-in high-rate modems support flexible data transmissions which guarantee a high probability of error-free data transfer, even under the harshest communication conditions. The Tadiran HF-6000 has the ability to transmit messages to individuals, groups or all network members (selective calling). In addition, the power output is automatically adapted to communication conditions. Radio status information and visual alerts are shown to the operator on a menu-driven graphic display.

Key Features

Powerful key features which make the Tadiran HF-6000 adaptable to every arena:

- **MIL-STD ALE and AutoCall** – Offering increased tactical efficiency, responsiveness and operational ease. The HF-6000 radio systems provide optional MIL-STD-188-141B ALE for interoperability with other MIL-STD-188-141B stations. AutoCall – a proprietary function – delivers faster and more reliable link establishment and is recommended when greater tactical efficiency is critical.
- **Digital active squelch** – Filters out annoying noise traditionally associated with HF communications. As a result, the HF-6000 family not only eliminates false alarms and misdetections, but also supports connections to vehicular intercom systems and to HF-VHF relay stations.
- **Selective calling** – Allows the operator to address a message to an individual member, a group, or an entire network. Selective calling is applicable in CLEAR, COMSEC, frequency-hopping and frequency management modes.
- **Data communications** – Built-in, high-speed and reliable modems assure reliable data transfer even under harsh communication conditions by using powerful error detection techniques and correction codes. The modems utilize a variety of wave forms including: Single tone, 39 tone and programmable FSK, all compatible with MIL-STD-188-110A/B, STANAG 4539, STANAG-4285 and MFSK.
- **COMSEC** – Ensures secure voice, data and burst communications. Voice communications are digitally encrypted or scrambled in frequency, time and phase domains. Data and burst communications are digitally encrypted.
- **ECCM** – Elbit Systems Land and C4I-Tadiran's proprietary ECCM-full-band frequency-hopping assures reliable and successful operations in densely-jammed environments. The HF-6000 employs automatic synchronization to eliminate the need for vulnerable master stations. It delivers immediate operational readiness without any cumbersome, time-consuming synchronization processes. The HF-6000 ECCM can be applied to voice, data and burst communications.
- **GPS** – Internal GPS providing location and situational awareness data for C4I applications.
- **Vocoder** – Built in to enable higher voice quality based on the Mixed Excitation Linear Prediction (MELP) coder. The utilization of speech compression methods tailored to the HF channel conditions, Forward Error Correction (FEC) and frame synchronization provides improved intelligibility, voice quality and recognition in comparison with traditional LPC-10 vocoders.
- **Dual frequency** – Supports reception and transmission over different frequencies, ensuring reliable communications when the same channel frequency cannot be used by stations due to poor link quality.
- **Burst** – Allows preprogrammed short messages to be transmitted and received by a designated net station when the link conditions are below the voice intelligibility threshold. Burst messages are supported by a power error correction code, with an acknowledge signal sent upon successful message reception.
- **Adaptive data transmission** – Increases the effective data throughput for a typical HF link by matching the data transmission parameters to the quality of the HF link.
- **Adaptive power control** – Enables output power to be automatically adapted to communication conditions, assuring the lowest transmission power level and power consumption for a predefined communication quality level.

Antenna Solutions

Elbit Systems Land and C4I - Tadiran offers a variety of antennas based on the prevailing operational requirements. The proprietary NVIS solution is designed to overcome skip zone communication problems and to provide a continuous communication range from 0 to more than 1000km.

Configurations

The Tadiran HF-6000 radio systems are available for tactical configurations in portable man-pack, vehicular, ship, fixed station and strategic sites configurations.

Tactical

PRC-6020 (20 watt)

A compact integrated man-pack radio unit

VRC-6020 (20 watt)

A low-power radio system available in vehicular or fixed station configuration

VRC-6200 (125 watt)

A vehicular or fixed radio set configuration

Strategic sites configurations

GRC-6400 (400 watt), GRC-6600 (1000 watt) and GRC-6800 (4000 watt)

Fixed station radio set configurations

Ship radio set configurations

Tadiran HF-6000

Combat-proven and multi-adaptive HF radio systems for reliable communications

General	
Frequency range:	1.5000 to 29.9999 MHz
Channels:	2,850,000 at 10 Hz spacing
Modes of Operation:	
Clear	Fixed frequency, Dual frequency, AutoCall and MIL-STD-ALE
COMSEC	Fixed frequency, Dual frequency, Autocall and MIL-STD-ALE
ECCM	Frequency-Hopping
Type of Traffic	Analog voice,Digital voice (optional), Data, Burst, CW
Modulation	USB, LSB, AM
Preset	100 channel parameters
Built-In-Test (BIT)	On-line and operator initiated
Environmental Conditions	Per MIL-STD-810 E/F
Operating Temperature	-40C to +65C
EMC/EMI	MIL-STD-461/2
Configuration Power	
PRC-6020	5W/10W/20W
VRC-6020	5W/10W/20W
VRC-6200	20W/50W/125W
GRC-6400	100W/200W/400W
GRC-6600	200W/500W/1000W
GRC-6800	1000W/2000W/4000W
Digital Squelch	
Type	Digital FSK Coding
False Alarms	Less than one per hour
Vocoder (optional)	
Rates	2400, 1200 bps
Encryption	Digital encryption
Modem type	Single tone
Selective Calling	
Type	Digital FSK Coding
Addresses	27 individual, 3 groups, All

AutoCall – Automatic Link Establishment (ALE)	
Frequency Tables	100
Frequency Table Length	10
Link Establishment Time	2.5 to 4.5 seconds
MIL-STD-188-141A ALE (optional)**	
Frequency Tables	10
Frequency Table Length	Up to 100
Self Addresses	20
Other Addresses	100
ALE Nets	20
Data Communication (optional)	
Built-in Modem Types	MIL-STD-188-110A/B, STANAG 4539, Single Tone, 39-Tone, STANAG 4285, PFSK, MFSK
FLASH – Built-In Data Terminal	
Data Type	Up to 100 preformatted messages
	3 digits, up to 900 coded messages with acknowledge capability
	90 character messages with acknowledge capability
ECCM – Frequency-Hopping (optional)	
Communication Type	Voice, Data, FLASH, Digital CW (optional)
Technique	Full band frequency-hopping and sub-band frequency-hopping
Synchronization	Fast and automatic; no need for periodic resynchronization or master station
COMSEC (optional)	
Voice	Digital and analog
Data, FLASH, CW	Digital encryption

With more than four decades of experience, Elbit Systems Land and C⁴I-Tadiran is a global leader in the development and implementation of advanced, combat-proven communications solutions for the modern battlefield. The company's communications equipment and systems are in use by the armed forces of over fifty nations, including the Israel Defense Forces.

The logo, brand, product, service, and process names appearing herein are the trademarks or service marks of Elbit Systems Ltd., its affiliated companies or, where applicable, of other respective holders.
© 2016. This brochure contains Elbit Systems and others proprietary information. EP10-MKT- 019

Elbit Systems Land and C4I Ltd.
2 H'amachshev St., Netanya 42507, Israel
E-mail: landc4i@elbitsystems.com www.elbitsystems.com/landc4i

Follow us on